ABSTRACT OF THE DISCLOSURE

An interferometric measuring device for recording shape, roughness or separation distance of the surface of a measuring object, having a modulating interferometer, to which is supplied short-coherent radiation by a radiation source, and having a first beam splitter for splitting the radiation supplied into first and second beam components guided respectively via first and second arms, of which the one is shifted as to the other with a modulating device in its light phase or light frequency, and passes through a delay line, and which are subsequently combined at an additional beam splitter of the modulating interferometer, having a measuring probe that is spatially separated from the modulating interferometer and is coupled/couple-able to it via a light-conducting fiber set-up, in which combined beam components are split in a common arm in a partially transmitting region into measuring and reference beams, and in which the measuring beam reflected at the surface and the reference beam reflected at a reference plane are superposed, and having receiver and evaluating devices for converting the supplied radiation into electrical signals and for evaluating the signals based on the phase difference. A construction for reliable measurements even in tight hollow spaces provides that the partially transmitting region is formed by a slanting exit face of a probe fiber at an exit angle as to the optical probe axis and a likewise slanting entrance face, of a fiber section following on the object side, as to the optical probe axis at an entrance angle, a wedge-shaped gap being formed between the exit and entrance surfaces.